Original Article

Prevalence of shoulder pain in hemiplegic patient who underwent physiotherapy treatment and who do not underwent physiotherapy treatment

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Abstract

Background: Stroke is the second leading cause of death and the leading cause of death worldwide. The incidence rate for men is slightly higher than that for women and more than 80% of the stroke patients are older than 65 years. The survival rate of stroke patients has increased over the last years. **Need for study:** To study the prevalence of shoulder pain in Hemiplegic patients following stroke. To find out the incidence of shoulder pain in hemiplegics who underwent physiotherapy treatment and who do not underwent physiotherapy treatment. **Method and Materials:** A Cross-sectional study included hemiplegic patients in the age group of 30-75 years in and out patient of MGMs hospital Aurangabad. Total of 44 participants included(29 Male and 15 Female) with diagnosed Stroke. **Instruments:** Modified Ashworth Scale, Functional Independence Measure, Numeric Pain rating scale. **Results:** We screened 44 hemiplegic patients for Hemiplegic Patients with shoulder pain 47.82% and without shoulder pain 52.18%,1 to 3 on NPRS is Mild pain is 10 patient having pain, 4-7 NPRS is Moderate pain is 26 of patient having pain and 8-10 is sever pain is 6 patient. In that 18 patient took Physiotherapy treatment and 26 patient did not took Physiotherapy treatment, 14 patient suffer from shoulder subluxation and 30 patient did not suffer from shoulder subluxation. **Conclusion:** Prevalence rate of HSP among post-stroke hemiplegic patients is associated with the return of a minimum of shoulder movements. There was no association of HSP with factors like age, sex, side of paralysis, type of lesion. Relashion between HSP and degree of functional recoverywas significant as the pain was common in both the subjects whether they underwent physiotherapy or not but the performance of shoulder function.

Keywords: hemiplegic.

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INTRODUCTION

Stroke is the second leading cause of death and the leading cause of death world wide[1]. The incidence rate for men is slightly higher than that for women and more than 80% of the stroke patients is older than 65 years.[2] The survival rate of stroke patients has increased over the last years.[3]A stroke is the rapidly developing loss of brain functions due to a disturbance in the blood vessels supplying blood to the brain. This can be due to ischemia (lack of blood supply) caused by thrombosis or embolism or due to a hemorrhage. In over 90% of individuals an initial flaccid paralysis occurs which is often replaced by a predictable pattern of spasticity which may vary from 24 hours to 12-18 months.[4] Risk factors for stroke include advanced age, hypertension (high blood pressure), previous stroke or transient ischemic attack (TIA), diabetes, high cholesterol, cigarette smoking and atrial fibrillation. High blood pressure is the most important

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modifiable risk factor of stroke[5]. Shoulder pain after stroke is quite common in hemiplegia with anestimated incidence between 16% and 84%[6,7]. This so-called Post Stroke Shoulder Pain, or PSSP can impede rehabilitation and interfere with both function and quality of life. In stroke, shoulder pain is related to a complex variety of physical changes which originate during either the flaccid or spastic stage. In the flaccid stage, the shoulder is prone to inferior subluxation and vulnerable to soft-tissue damage (i.e., labrum, muscles, nerves, and tendons). The therapeutic intervention in this stage is to support the arm at all times. In the spastic stage, movement is often severely limited and coexisting disorders such as rotator cuff tears and adhesive capsulitis have been reported in patients with Post Stroke Shoulder Pain.[8] Hemiplegic shoulder pain (HSP) is common complication after stroke, with incidence rate ranging from 37 to 84 percent of cases.[9]Pain is describe as sharp and stabbing and is more common on movement than rest. Early on, pain can be intermittent and limited to just the shoulder. During late stage of pain its constant and progress to sever pain in more than just the shoulder. Severe causes of the HSP have been identified, that can be broadly divide into flaccid and spastic presentation.[10]Possible causes for shoulder pianafter stroke and it could be caused by known afflictions such as adhesive capsulitis, impingement due to rotator cuff tears and subluxation of the glenohumeral joint. PSSP is caused by damage to the structures around the glenohumeral joint due to a muscular imbalance (rotator cuff tears, spasticity, and paralysis), a disturbance in positioning of the GH joint (impingement, or upward migration of the humeral head, or inferior subluxation) or damages due to a disturbed sensibility, possibly related to unilateral neglect.[11]The need for the study is prevalence of shoulder pain in Hemiplegic patients following stroke.To find out the incidence of shoulder pain in hemiplegics who underwent physiotherapy treatment and who not underwent physiotherapy treatment.

METHOD AND MATERIALS

A Cross-sectional study included hemiplegic patients in the age group of 30-75 years in and out patient of MGM's hospital Aurangabad. Total of 44 participants included (29 Male and 15 Female) with diagnosed Stroke were recruitedin this study were cases diagnosed as stroke by the Neurology specialist with documented radiological report of MRI and CT- scan of brain following which they suffered with Hemiplegia and further shoulder pain. Informed consent was taken before inclusion in the study. Subjects between 30-75 years of age, Duration, type of stroke, hemiplegic patients in the age group of 30-75, diagnosed as stroke by the Neuro Physician with documented radiological report of MRI and CT- scan of brain. Patients with minimum of 1 month post stroke, No secondary post stroke complications were included in the study. Subjects less/ more than specified age limit, Prior history of shoulder pain on the affected side, Shoulder pain associated with Impingement syndromes, capsulitis, bursitis, tendinitis. Previous history of fractures of clavicle, humerus were excluded from the trial.

PROCEDURE

The 44 subjects were assessed and measured for the grade of spasticity on Modified Ashworth scale (MAS) and functional independence measure (FIM) to document the severity of disability and for knowing the prognosis following physiotherapy treatment. Participants were assessed for impingement, laxity of joint, tendinitis and rotator cuff lesions with a common symptoms of reduced mobility, Pain with movement, and range of motion of the affected shoulder joint tenderness, Swelling/edema, Decreased coordination. Assessment of severity of HSP was done by using a Numeric Pain Rating Scale (NPRS) which consists of Numerical Rating Scale, where 0 ='no pain' and 10 = 'pain as bad as it could be'. The outcome measures consisted of modified Ashworth Scale, Functional Independence Measure, and Numeric Pain rating scale.

RESULT

We screened 44 hemiplegic patients for shoulder pain 47.82% and without shoulder pain 52.18% (Figure 1). Out of the 44 subjects 65.90% (29 Male) and 34.09% (15 Female), were in between the age group of 30 years to 75 years and their mean and SD was 58.068 ± 13.341 (Figure 2). The Grade 0 is No pain 2 patient reported, 1 to 3 on NPRS is Mild pain is 10 patient having pain, 4-7 NPRS is Moderate pain is 26 of patient having pain and 8-10 is sever pain is 6 patient (Figure 3). 25% patient suffered from hemorrhage and 75% patient suffered from Ischemic type of stroke.(Figure 4). Muscle tone were measured on MAS, were 1+ were 17an 1 were 12 (Figure 5). In that 18 patient took Physiotherapy treatment and 26 patient did not took Physiotherapy treatment (Figure 6). 14 patient suffer from shoulder subluxation with shoulder pain and 30 patient did not suffer from shoulder subluxation (Figure 7).

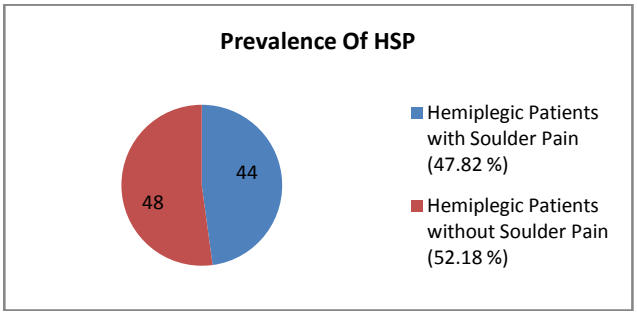

Figure 1: Comparison between of Hemiplegic Shoulder pain

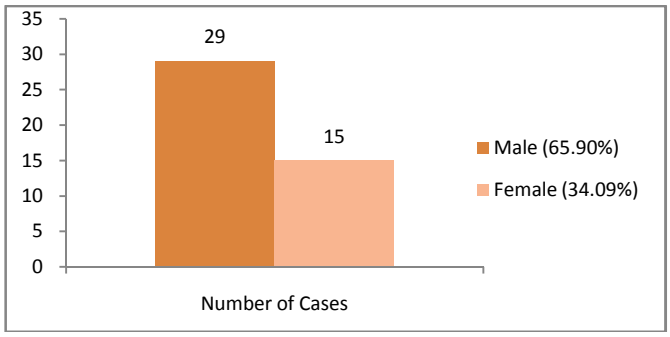

Figure 2: Total no demographic data of Male and Female Population

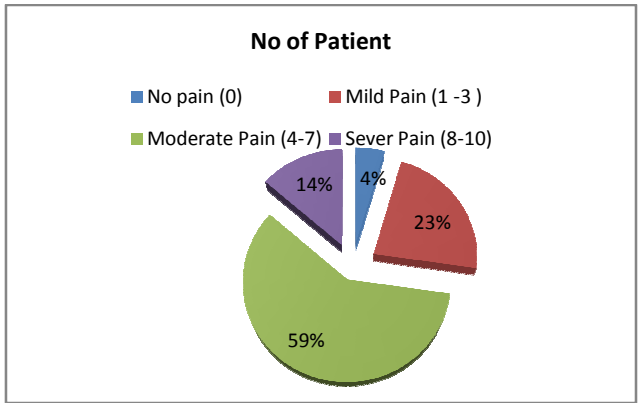

Figure 3: Hemiplegic Shoulder the pain intensity on NPRS in Stroke Patient

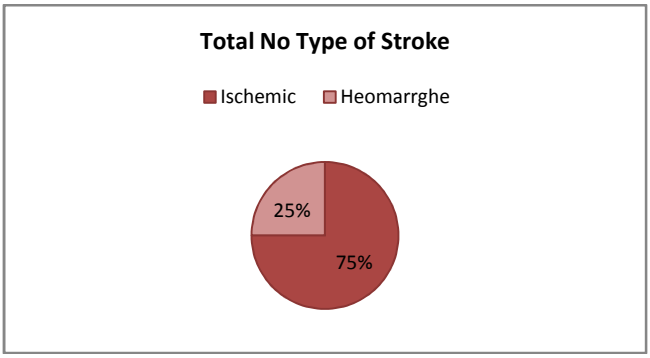

Figure 4: Hemiplegic Shoulder in twotype of Stroke

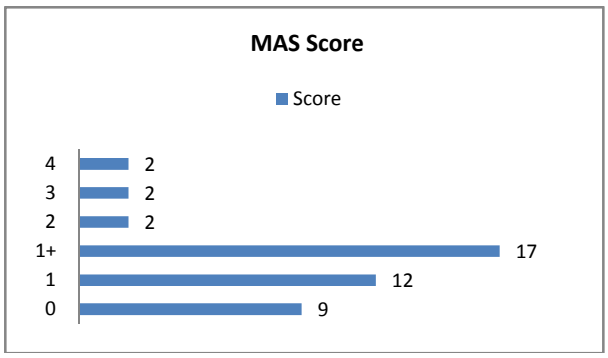

Figure 5: Show total no of patient score on Modified Asworth Scale (MAS)

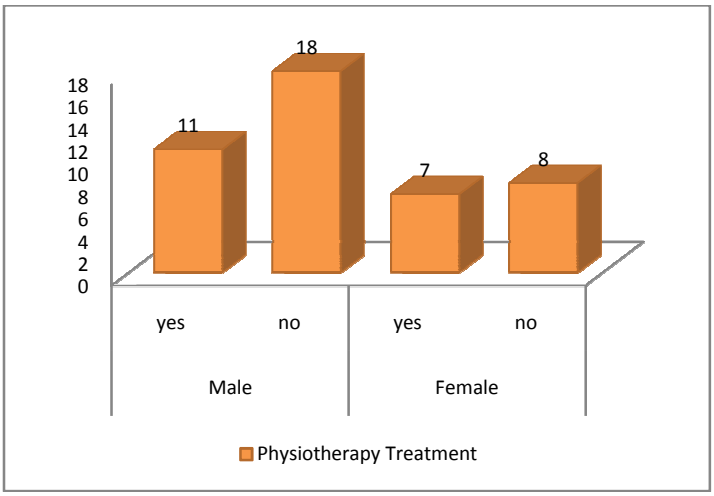

Figure 6: Total no of patient have taken Physiotherapy Treatment.

Table 1: Show patient was suffer in Shoulder Subluxation with shoulder pain

	Male		Female	
	yes	no	yes	no
Subluxation	10	19	4	11

DISCUSSION

The prevalence rate of HSP among post-stroke hemiplegia patients in the present study is similar withthe finding ofvarious studies where 44 subjects complained of pain of varying degrees of severity. Mean of the age was 58.06 and genderwise males were 65.90% (29) and females were % (15) was not correlated with hemiplegic shoulder pain with all cases complaining of pain whichwas graded on the Numeric Pain Rating scale (NPRS) and they reported varying degrees of pain of mild, moderate, severe or worse degrees. While HSP was more prevalent among left sided hemiplegia present study showed more cases of left sided hemiplegia (57.8%) 26, and (41%) 18 were right sided prevalence of HSP on both sides. There were two common factors associated with patients with HSP; loss of range of motion of shoulder, especially external rotation, and laxity of glenohumeral

joint which predispose the shoulder joint to subluxation as explained by Bohannon *et al* Pain, was reported by 36 (73%) patients.It was found that HSP was more prevalent and persisted among the late cases at follow up which was found significant this showed that institution of early rehabilitation was effective inprevention and improvement of HSP. Shoulder pathology occurs in up to 85% of patients with spastic symptoms and in up to 18% of patients with flaccid symptoms.[11]Other clinical trials have reported the general incidence of shoulder pain in patients with hemiplegic stroke to be 16-84%,[12] while that for shoulder subluxation has been found to be as high as 81%.[13] Reflex sympathetic dystrophy (RSD) also appears to be a relatively common complication of hemiplegia.[14] Pain is the perception or identification of stimuli as painful.[15] Every stroke survivor's pain is different and may be mild or severe and may last for a short time or be constant. The prevalence of the pain in those who underwent physiotherapy which included passive movements, stretching and positioning in splints and as reflex inhibitory posture was by comparing its prevalence in those who did not undergo physiotherapy who also had pain but were more prone to progressive weakness and laxity putting them at further risk of subluxation.It was reported that HSP developed in patients and its prevalence increased in the first few weeks post. Discharge which was both due to neglect and lack of physiotherapy leading to less and pain on mobility.Those who were graded as 1 or 1+ on the Modified Ashworth Scale showed better prognosis and though complained of pain were able to perform the shoulder movement compare to those who were more on the grading scale though the patients who were included in the study were between the grade of 1 and 1+ of the 44 subjects 29 subjects were on the mentioned grade. Relating to the previous studies done by Langhorne 6 patients experienced shoulder pain at some time through the course of recovery from stroke. The pain was experienced both by subjects who underwent physiotherapy and those who did not undergo physiotherapy, 18 of the subjects 40.9% who underwent physiotherapy and 26 subjects 59.09 % who did not undergo physiotherapy.Though the incidence of pain was more in those who did not undertake physiotherapy the they were exposed to more shoulder complications like adhesive capsulitis secondary to stroke, gleno humeral subluxation following weakness and laxity in the shoulder. Those who underwent physiotherapy were also experiencing the pain of the same grade but were able to do shoulder movements with limitations thus lowering the risk of further complications. More over the duration and the positioning and posturing of the extremity during the acute phase was also a contributory factor predisposing the shoulder to the typical Hemiplegic` shoulder pain.

CONCLUSION

Prevalence rate of HSP among post-stroke hemiplegic patients is associated with the return of a minimum of shoulder movements. There was no association of HSP with factors like age, sex, side of paralysis, type of lesion. Relation between HSP and degree of functional recovery was significant as the pain was common in both the subjects whether they underwent physiotherapy or not but the performance of shoulder function and functional mobility of the upper extremity was a preventive factor for the weakness, laxity leading to subluxation and secondary shoulder complications in future.

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22. information on stroke caregiving, visit the RESCUE home page: http://www.rorc.research.va.gov/rescue

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